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09/838,279	04/20/2001	Fumio Mikami	35.G2787	9115
5514	7590	05/16/2006	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			HUNTSINGER, PETER K	
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NEW YORK, NY 10112			PAPER NUMBER	
			2625	

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/838,279

Applicant(s)

MIKAMI, FUMIO

Examiner

Peter K. Huntsinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/28/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 9-28, and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajika et al. Patent 5,528,270, and in further view of Hayashi Patent 6,160,922 and Takahashi Patent 6,697,167.

Referring to claims 1, 14, and 21, Tajika et al. disclose a recording apparatus for recording an image on a recording medium by using a recording head in which a plurality of recording elements are arranged and for correcting non-uniformities in the density of the recorded image caused by different recording elements having different recording characteristics, said apparatus comprising: memory means for storing a first table group for correcting input multi-level image data, and a second table group comprising a plurality of second correction tables having correction characteristics which are different from correction characteristics of the first table group with respect to different density levels (col. 3, lines 47-54); first forming means for instructing each of

the recording elements to record a pixel of a predetermined density to form a first test pattern using all the recording elements (S3 of Fig. 13, col. 10, lines 10-15); first setting means for setting test correction tables for making the densities of an image to be recorded by the plurality of recording elements uniform by associating first correction tables of the first table group with respective recording elements of the plurality of recording elements (col. 6, lines 51-64) based on a result of reading the densities of areas of the first test pattern that correspond to the plurality of recording elements (S5 of Fig. 13, col. 10, lines 10-25). Tajika et al. do not disclose expressly a first table group comprising a plurality of correction tables. Hayashi discloses a table group comprising a plurality of correction tables (Y, M, C, and K correction tables, col. 13, lines 49-59) (col. 11, lines 25-26). Tajika et al. and Hayashi are combinable because they are from the same field of correcting printing characteristics. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a plurality of correction tables to correct density. The motivation for doing so would have been to provide a greater correction than would be provided by using only a single correction table. Tajika et al. do not disclose expressly forming a second test pattern. Takahashi discloses second forming means for forming a second test pattern having a plurality of different density levels, the second test pattern being recorded with the recording elements being corrected by test correction tables set by a first setting means (S105 of Fig. 9, col. 13, lines 36-43); and second setting means for setting recording correction tables corresponding to each of the plurality of recording elements based on the second test pattern (S107 of Fig. 9, col. 13, lines 59-62). Tajika et al. further discloses setting

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the recording correction tables being selected from among the first table group and the second table group (col. 3, lines 55-60). Tajika et al. and Takahashi are combinable because they are from the same field of correcting printing characteristics. At the time of the invention it would have been obvious to a person of ordinary skill in the art to form a second test pattern and set the recording tables based on the second test pattern according to the disclosure of Takahashi. One of ordinary skill in the art would have been motivated to do this to further improve the image quality of a document by reducing the non-uniformities of image density. Therefore, it would have been obvious to combine Hayashi and Takahashi with Tajika et al. to obtain the invention as specified in claims 1, 14, and 21.

Referring to claims 2, 15, and 22, Tajika et al. disclose recording correction tables but do not disclose expressly a user judging a test pattern. Hayashi disclose selection means for selecting the recording correction tables by a user judging the second test pattern (col. 13, lines 55-59). In the apparatus of Hayashi, the user can select either the correction tables as generated in Fig. 9, or can select the original correction tables. Tajika et al. and Hayashi are combinable because they are from the same field of correcting printing characteristics. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to allow a user to judge the result of a test pattern. The motivation for doing so would have been to allow a user to determine the most accurate test result in the selection of the printing characteristics. Therefore, it would have been obvious to combine Hayashi with Tajika et al. to obtain the invention as specified in claims 2, 15, and 22.

Referring to claims 3, 16, and 23, Tajika et al. disclose a second table group, but do not disclose expressly a first group for higher density levels and a second group for lower density levels. Hayashi discloses a second table group comprising the plurality of second correction tables comprises a first table for higher density levels and a second table for lower density levels, the second table having a degree of correction different from a degree of correction of the first table (S2 and S3 of Fig. 5, col. 9, lines 58-65) (col. 13-14, lines 66-67, 1-30). Tajika et al. and Hayashi are combinable because they are from the same field of correcting printing characteristics. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide separate tables for higher and lower density levels. The motivation for doing so would have been to more accurately correct the higher and lower density levels. Therefore, it would have been obvious to combine Hayashi with Tajika et al. to obtain the invention as specified in claims 3, 16, and 23.

Referring to claims 4 and 25, Tajika et al. disclose recording elements but do not disclose expressly light emitting elements. Hayashi discloses wherein the recording elements comprise light emitting elements (LD 454 of Fig. 4, col. 9, lines 44-49). Tajika et al. and Hayashi are combinable because they are from the same field of correcting printing characteristics. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to utilize light emitting elements. The motivation for doing so would have been to reduce the cost of recording with ink. Therefore, it would have been obvious to combine Hayashi with Tajika et al. to obtain the invention as specified in claims 4 and 25.

Referring to claims 5 and 26, Hayashi discloses wherein the light emitting elements comprise LED elements (LD 454 of Fig. 4, col. 9, lines 44-49).

Referring to claims 6 and 27, Tajika et al. disclose wherein the recording head is an ink jet head for recording by ejecting ink from a plurality of nozzles in response to driving of the recording elements (col. 5, lines 14-17).

Referring to claims 7 and 28, Tajika et al. disclose wherein the recording elements comprise electrothermal converters for applying thermal energy to ink (col. 12, lines 38-44).

Referring to claims 9 and 24, Tajika et al. disclose reading means for reading recorded images (col. 5, lines 22-27)

Referring to claim 10, Tajika et al. disclose wherein said first setting means sets the test correction tables based on a result of reading the first test pattern by said reading means (col. 6, lines 51-64).

Referring to claims 11 and 18, Tajika et al. disclose forming means for forming a test pattern having the plurality of different density levels, the test pattern being recorded by recording elements uncorrected by any correction table (S3 of Fig. 13, col. 10, lines 10-15). Takahashi discloses forming means for forming a test pattern having a plurality of different density levels, the second test pattern being recorded with the recording elements being corrected by test correction tables set by a first setting means (S105 of Fig. 9, col. 13, lines 36-43). Tajika et al. do not disclose expressly setting the recording correction tables based on a comparison of a second and third test pattern. Hayashi discloses comparing a second and third test pattern (col. 13, lines 55-59).

Because the third test pattern is uncorrected by any correction table, it is equivalent to the uncorrected first test pattern of Hayashi. Tajika et al. and Hayashi are combinable because they are from the same field of correcting printing characteristics. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement the printing of a test pattern of modified correction tables of Takahashi with the comparison between original and modified correction tables of Hayashi. One of ordinary skill in the art would have been motivated to do this to allow the user to view the printed original and modified correction tables before deciding which correction tables to utilize. Therefore, it would have been obvious to combine Hayashi with Tajika et al. and Takahashi as specified in claims 11 and 18.

Referring to claims 12 and 19, Hayashi discloses an apparatus according to claim 11, wherein the comparison of the second and third test patterns is performed by a user (col. 13, lines 55-59). In the apparatus of Hayashi, the user can select either the correction tables as generated in Fig. 9, or can select the original correction tables.

Referring to claims 13 and 20, Hayashi discloses an apparatus according to claim 11, further comprising reading means for reading recorded images and comparing means for comparing densities of read images, wherein said reading means reads the second and third test patterns (S12 of Fig. 9B, col. 13, lines 36-44) and the comparison of the second and third test patterns is performed by said comparing means comparing data read by said reading means (col. 13, lines 55-59). In the apparatus of Hayashi, the user can select either the correction tables as generated in Fig. 9, or can select the original correction tables.

Referring to claim 17, Tajika et al. disclose a step of reading recorded images, wherein said first setting step sets the test correction tables based on a result of reading the first test pattern in said reading step (S5 of Fig. 13, col. 10, lines 10-25).

Referring to claims 30 and 32, Tajika et al. disclose means for reading the density of each recorded pixel produced by each recording element (S5 of Fig. 13, col. 10, lines 10-25); means for determining whether the read density of each recorded pixel is the same as the predetermined density (S9 of Fig. 13); and means for correcting the operation of each recording element that recorded a pixel of different density than the predetermined density by associating a particular first correction table of the first table group with each recording element that recorded a pixel of a different density than the predetermined density (S11 of Fig. 13), the particular first correction table associated with each recording element providing a compensating correction to each recording element that recorded a pixel of a different density than the predetermined density (S13 of Fig. 13), wherein correction tables associated with recording elements recording pixels of different densities by the first forming means provide differing compensating corrections (col. 3, lines 47-54)

Referring to claim 31 and 33, Takahashi discloses means for reading the density of each recorded pixel produced by each recording element as a result of being instructed to record by said second forming means S of Fig. 9, col. 13, lines 56-59); means for determining whether the recorded pixels exhibit a non-uniform density within each density level S107 of Fig. 9, col. 13, lines 59-62); and means for correcting the operation of each recording element at a particular instructed density level that

contributes to any determined density non-uniformity (S108 of Fig. 9, col. 13, lines 63-67). Tajika et al. further discloses associating a particular first correction table of the first table group or a particular second correction table of the second group with each recording element that contributes to any determined density non-uniformity (col. 3, lines 55-60).

Referring to claim 34, Tajika et al. disclose wherein said determining means comprises: means for reading the density of each recorded pixel produced by each recording element (S5 of Fig. 13, col. 10, lines 10-25); means for determining whether the read density of each recorded pixel is the same as the predetermined density level (S9 of Fig. 13);

4. Claims 8 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajika et al. Patent 5,528,270 and Takahashi Patent 6,697,167 as applied to claims 1 and 21 above, and further in view of Matsumoto et al. Patent 6,439,683.

Referring to claims 8 and 29, Tajika et al. disclose recording elements but do not disclose recording utilizing an ink jet head with piezoelectric converters. Matsumoto et al. discloses an apparatus according to claim 6, wherein the recording elements comprise piezoelectric converters for ejecting the ink (col. 33, lines 59-64). Tajika et al. and Matsumoto et al. are combinable because they are from the same field of printing systems. At the time of the invention it would have been obvious to a person of ordinary skill in the art to utilize piezoelectric converters. The motivation for doing so would have been to provide high definition printing. Therefore, it would have been obvious to

combine Matsumoto et al. with Tajika et al. to obtain the inventions as specified in claims 8 and 29.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter K. Huntsinger whose telephone number is (571)272-7435. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on (571)272-7471. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PKH

A handwritten signature in black ink, appearing to be 'PKH' followed by a stylized flourish.A handwritten signature in black ink, appearing to be 'KA Williams'.

**KIMBERLY WILLIAMS  
SUPERVISORY PATENT EXAMINER**